



California Energy Commission

Southern California Reliability

Preliminary Plan

Chair Robert B. Weisenmiller

**2013 Independent Energy Producers Association
Annual Meeting**

September 26, 2013



Reality of Southern California's Grid post-San Onofre

Details:

- San Onofre represented 16% of local generation or ~1.4 million homes
- More importantly its location was on a critical transmission path that was crucial to voltage support

Challenge:

- Voltage support can only be supplied by: conventional generation, CHP, or electrical motors (synchronous condenser) – preferred resources can reduce voltage needs
- Once through cooling retirement timeline of 5,000 MW plus annual load growth of 400 MW

Actions:

- Procure/develop 3,250 MW of preferred resources
- Procure/develop infrastructure that provides voltage support or enhances sharing between OC and SD, and 3,000 MW of conventional to meet remaining need
- Establish backstops in the event needed resources are not fully deployed



Summary of task force approach

Requirements:

- Maintain reliability – Number 1 priority
- Establish common understanding of needs

Approach:

- Establish 50% goal for energy efficiency, demand response, storage, and distributed generation to achieve as much as possible
- Authorize immediate procurement of EE, DR, DG, storage, CHP and residual levels of gas-fired generation
- Authorize transmission upgrades to reduce needs
- Establish back up approvals to address key risks
- Manage critical risks for air permits, transmission siting, preferred resource deployment/effectiveness, natural gas supply
- Utilize existing processes to get final decisions on long-term solutions by mid-year 2014



San Onofre closure causes reliability problems in Southern California because Los Angeles and San Diego are load pockets with limited options

Real-time changes (contingency response)

- System must be ready to respond to events
- Some events are instantaneous; others allow 30 minutes

Real power (Watts)

- Runs lights and appliances
- Requires correct voltage for delivery (like pressure in water pipes)



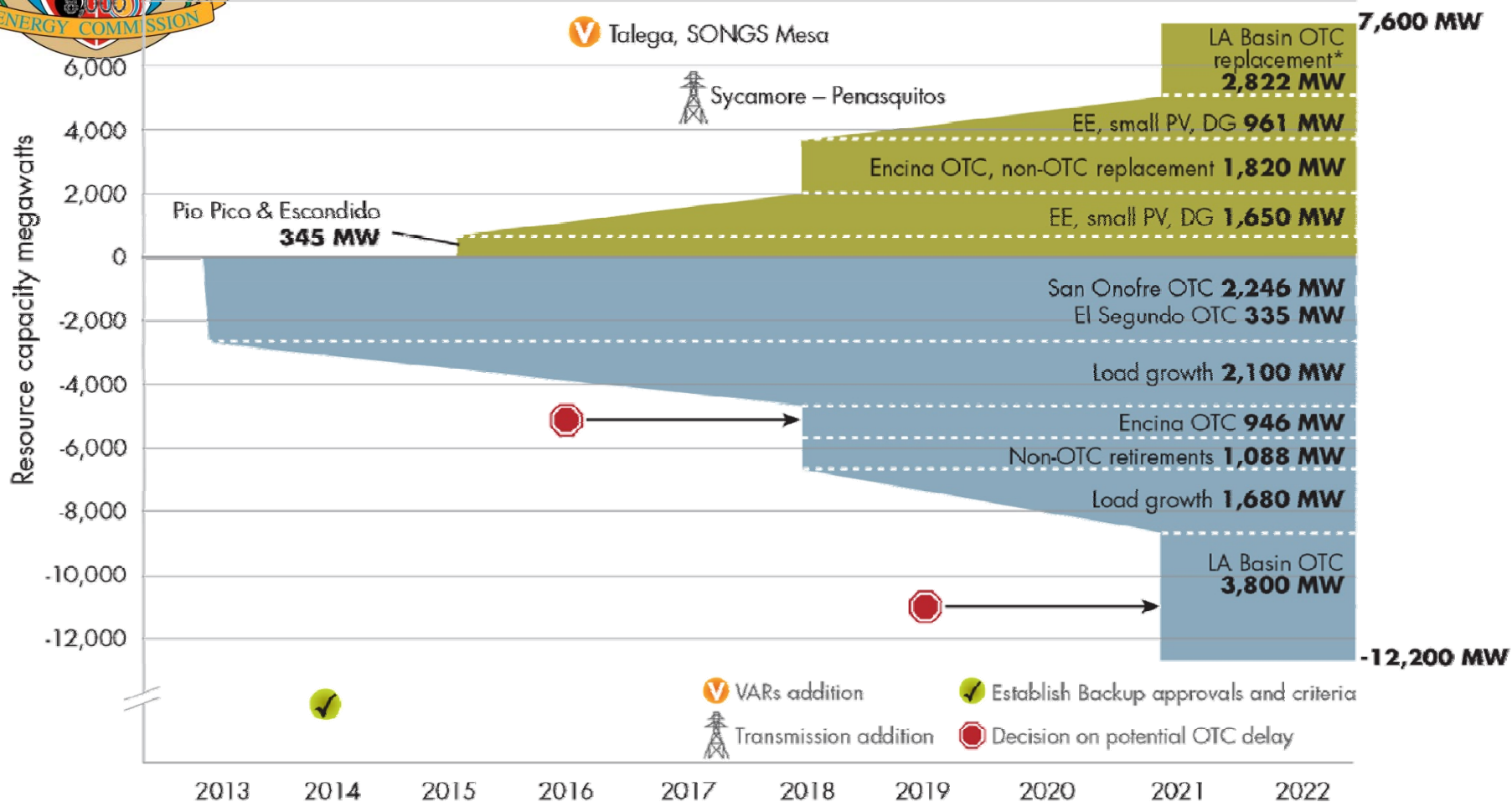
Reactive power (Vars)

- Over or under supply of Vars causes voltages to climb or fall
- Local needs must be met locally

- All three characteristics are needed – not all resources can provide.
- Compliance with once-through cooling schedule compounds the issues.
- San Onofre provided: 2,246 MW in the LA Basin
1,100 MVars supporting voltages between Los Angeles & San Diego



Resource picture for LA Basin and San Diego



Total load in LA Basin & San Diego:
 2018 = 27,500 MW
 2022 = 29,000 MW

*1,800 MW authorized
 • May include additional preferred resources
 • Transmission could further reduce need



No single resource can meet both reliability needs and state policy objectives

Type	Energy (MWs)	Contingency response	Voltage support (VARs)	Direct GHG emissions
Energy Efficiency	Yes ²	Yes ²	Yes ²	Low
Demand Response	Yes	Yes	No	Low
Combined Heat & Power	Yes	Maybe	Yes	High
Storage	Yes	Yes	Maybe	Medium 1
Rooftop Solar	Yes	No	No	Low
Synch Condenser and other voltage support devices	No	Yes	Yes	Medium 1
Gas Peaker/CT	Yes	Yes	Yes	High
Gas Combined Cycle	Yes	Yes	Yes	High
Transmission	Yes	Yes	Yes	Medium 1

[1] The GHG attributes of storage and synchronous condensers depend on the energy used from the grid

[2] Reduces overall load and requirements



Transmission alternatives under consideration:





Specific near term actions (2013 - 2018)

VARs	MW	VARs & MW
Permit Talega & San Onofre Mesa projects	Flex-Alert funding beyond 2014	Maintain capacity at Cabrillo II
Extend Huntington Beach synchronous condensers	Permit construction of Sycamore-Penasquitos 230kv line	Timely action on Pio Pico
Modify San Onofre voltage criteria (w/SCE)	Authorize acceleration of EE, DR, DG, and storage procurement in target areas	Authorize procurement to replace Encina
Evaluate conversion of one San Onofre unit to a synchronous condenser	Evaluate transmission alternatives	Timely decisions to license replacements for OTC capacity
	Develop & implement multi-year auction for DR and EE	Create contingency permitting process

 CPUC
 CEC
 ISO



Additional long-term actions (2019 & beyond)

CPUC

- Authorize additional resources thru LTPP and other proceedings, including EE, DR, DG, storage
- Direct SDG&E and SCE to pursue contingency permits in Northern San Diego County and LA Basin that will be competitively bid to independent generation developers
- Address potential need for gas infrastructure in San Diego

CEC

- Conduct siting review of contingency generation
- Establish contingency approach to OTC compliance deadlines in consultation with the State Water Resources Control Board

ISO

- Consider transmission alternatives - AC, DC, sub-marine cables
- Monitor system upgrades in collaboration with the CEC and CPUC
- Trigger contingency backups